# TELECOMMUNICATIONS

# A TOP DOWN VIEW

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Voice/Data Integration
+
ISDN

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# Purpose

Update Research

Identify Current Status

Identify Strategic Considerations

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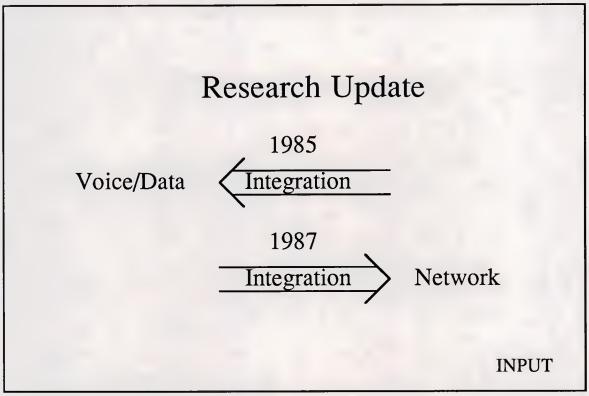


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## Research Update

| 1985 | 1987 | 1989 → |
|---|---|---|
| Integration | | |
| Voice | Voice | Voice |
| Data | Data | Data |
| | Graphics | Graphics |
| | Video | Video |
| | | ? |

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# Current Status

Trends and Directions

Management Understanding

Market

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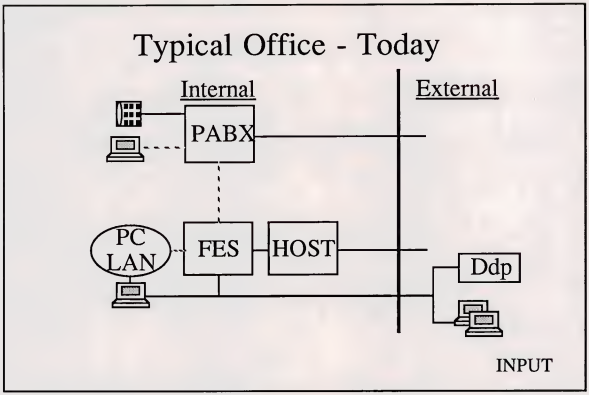


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## Trends and Directions
## Driving Forces

| Factors | Application Voice/Data | ISDN |
|---|---|---|
| New Applications | I | |
| Cost Savings | I | |
| Improved Quality | I | |
| New Technology | E | E |

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## Trends and Directions
## Driving Forces

| Factors | Application Voice/Data | ISDN |
|---|---|---|
| New Services | | E |
| Competition | E | E |
| Standards | | E |
| Greater Bandwidth | | I |

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## Trends and Directions
## Driving Forces

| Factors | Application Voice/Data | ISDN |
|---|---|---|
| Competitive Advantage | I | I |
| Business Globalization | | E |
| Systems Integration | I | I |

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Trends and Directions

Primary Integration Methods

- PABX
- Public Network
- T1 Multiplexer/Switch
- ISDN

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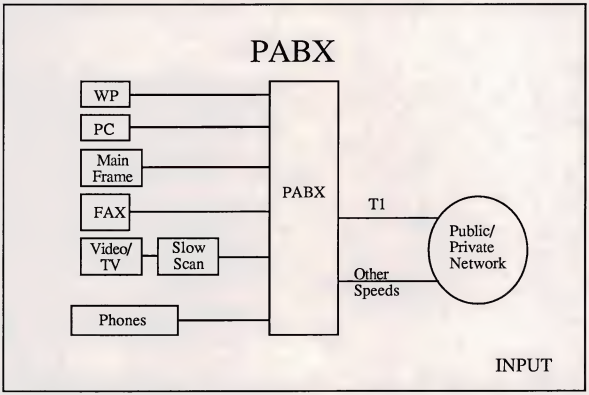


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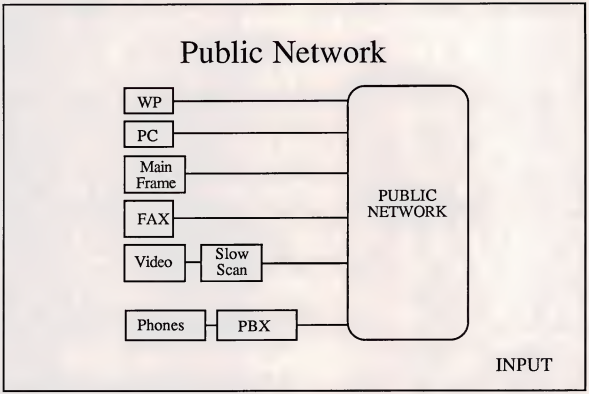


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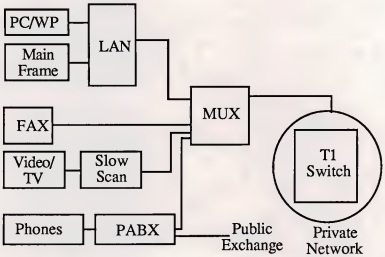
# T1 Multiplexer/Switch

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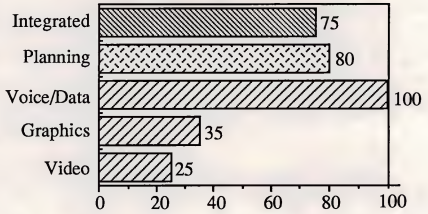
## Management Understanding
### Voice/Data Integration (Percent)

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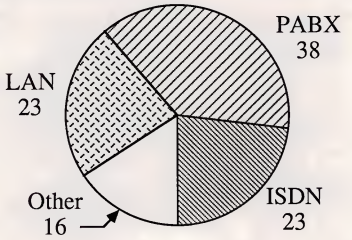
## Management Understanding

### Voice/Data Integration (Percent)

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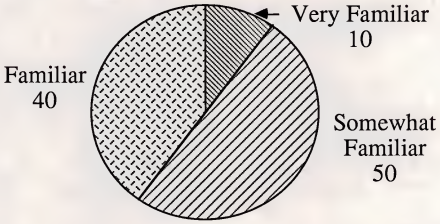
## Management Understanding

### ISDN Awareness (Percent)

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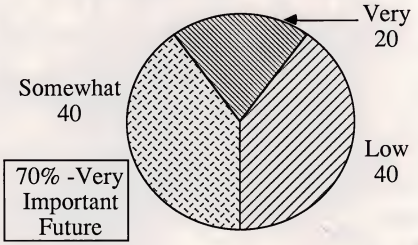
## Management Understanding

### ISDN Importance (Percent)

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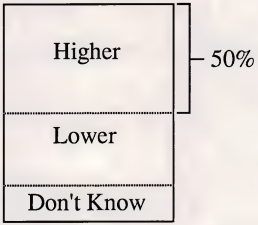
## Management Understanding ISDN Costs

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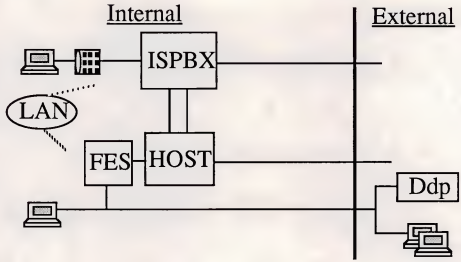
## Typical Office Configuration-Early 1990s

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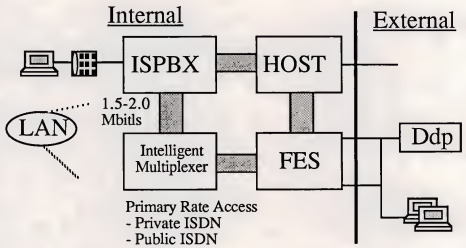
# Typical Office Configuration-Late 1990s

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# Network Integration Market

Concurrent Service

Three of Four
- Voice
- Data
- Graphics
- Video

Common Electronic Highway(s)

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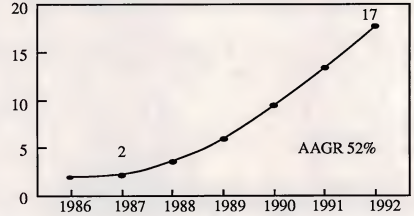
# Integrated Network Services Forecast

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# STRATEGIC CONSIDERATIONS

## WHAT IS INTEGRATION?

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## What is Integration?

From Whose Perspective?

For What Purpose?

Focus on 'Box' or Process?

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## Strategic Considerations

No Single Solution

User Requirements Vary

No Dominant Method

Development Focus

- Primarily External
- Bigger/Faster Highways

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# Strategic Considerations - Present

Short Term
- Reduce Operating Costs

Hardware
- Fiber Optics
- Multiplexers
- PABX

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# Strategic Considerations - Present

Single Use Islands
- Departmental LANS

Future Value Question
- Increased Data
- Increased Cost
- Strategic Use

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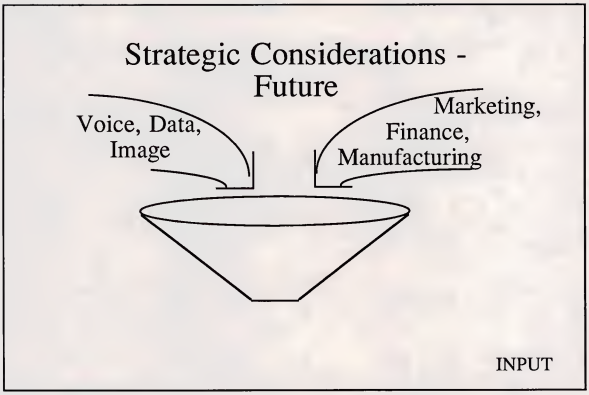


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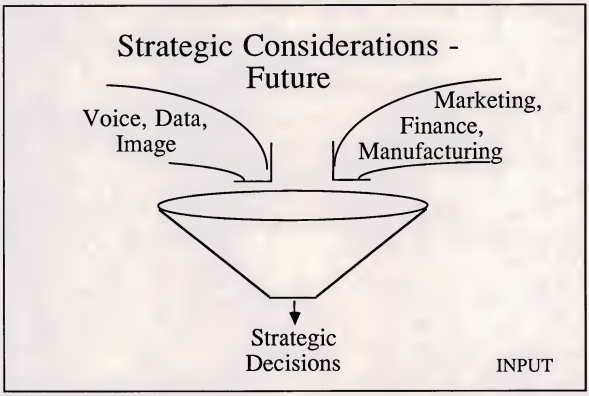


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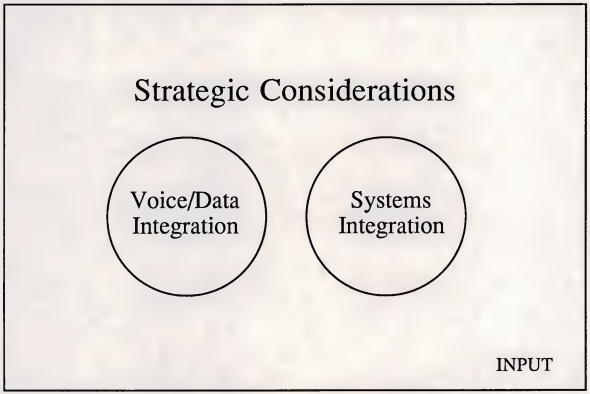


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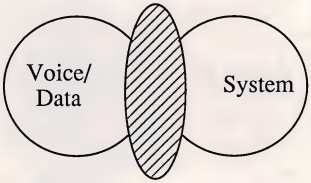
## Strategic Considerations

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## Research Update

| 1985 | 1987 | 1989 → |
|---|---|---|
| | Integration | |
| Voice | Voice | Voice |
| Data | Data | Data |
| | Graphics | Graphics |
| | Video | Video |
| | | Systems |

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